

CLAIMS

1. A dynamic network management system in a communication system including a mobile access router forming a mobile network, a local fixed router residing in the mobile network, and a mobile node participating in the mobile network, so arranged that the mobile node sends information to request for a global address of the mobile access router, and then the mobile access router receiving the information from the mobile node through the local fixed router, informs the mobile node about the global address of the mobile access router.

2. A dynamic network management system in a communication system including a mobile access router forming a mobile network, a local fixed router residing in the mobile network, and a mobile node participating in the mobile network, so arranged that the mobile node which does not know a global address of the mobile access router, sends information indicating that the mobile node does not know the global address of the mobile access router, and then the mobile access router receiving the information from the mobile node through the local fixed router, informs the mobile node about the global address of the mobile access router.

3. A dynamic network management system in a communication system including a mobile access router forming a mobile network, a local fixed router residing in the mobile network, and a mobile node participating in the mobile network, so arranged that a global address of the mobile access router is stored in a predetermined information storing means in the local fixed router when the local fixed router receives information including the global address of the mobile access router, and the local fixed router informs the mobile node about the global address of the mobile access router stored in the predetermined information storing means.

15 4. A dynamic network management apparatus placed in a mobile access router capable of forming a mobile network, comprising:

 a connection means for connecting a local fixed router residing in the mobile network,

20 an information detection means for detecting information to request for a global address of the mobile access router, the information being sent from a certain mobile node participating in the mobile network, and the information being forwarded by the local fixed router to the mobile access router, and

a response information sending means for sending response information including the global address of the mobile access router to the mobile node which has sent the information through the local fixed router in order 5 to inform the global address of the mobile access router when the information is detected by the information detection means.

5. A dynamic network management apparatus placed in a 10 mobile access router capable of forming a mobile network, comprising:

a connection means for connecting a local fixed router residing in the mobile network,

an information detection means for detecting 15 information indicating that a mobile node does not know a global address of the mobile access router, the information being sent from the mobile node participating in the mobile network and not knowing the global address of the mobile access router, and the 20 information being forwarded by the local fixed router to the mobile access router, and

a response information sending means for sending response information including the global address of the mobile access router to the mobile node which has sent 25 the information through the local fixed router in order

to inform the global address of the mobile access router when the information is detected by the information detection means.

5 6. The dynamic network management apparatus according to claim 4 or 5, comprising:

an information deleting means for deleting the information from a packet with the information when the information is detected by the information detection means, and

10 a forwarding means for forwarding the packet which the information has been deleted by the information deleting means to a predetermined destination set in the packet.

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7. The dynamic network management apparatus according to claim 4 or 5, comprising a forwarding means for forwarding a packet with the information to a determined destination set in the packet.

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8. The dynamic network management apparatus according to claim 4 or 5, comprising a dropping means for dropping a packet with the information.

25 9. A dynamic network management apparatus placed in a

mobile node capable of participating in a mobile network formed by a mobile access router, comprising:

a connection means for connecting a certain router residing in the mobile network,

5 a sending means for sending information to request for a global address of the mobile access router to the router when the mobile node does not know the global address of the mobile access router, the information being forwarded by the router connected via the

10 connection means to the mobile access router, and

a response information receiving means for receiving response information including the global address of the mobile access router sent from the mobile access router as a response to the information sent by

15 the sending means.

10. A dynamic network management apparatus placed in a mobile node capable of participating in a mobile network formed by a mobile access router, comprising:

20 a connection means for connecting a certain router residing in the mobile network,

an sending means for sending information indicating that the mobile node does not know a global address of the mobile access router to the router when the mobile

25 node does not know the global address of the mobile

access router, the information being forwarded by the router connected via the connection means to the mobile access router, and

5 a response information receiving means for receiving response information including the global address of the mobile access router sent from the mobile access router as a response to the information sent by the sending means.

10 11. The dynamic network management apparatus according to claim 9 or 10, comprising a information embedding means for embedding the information in a packet header of a Binding Update message sent to a predetermined communication apparatus, and being so arranged that the 15 sending means sends the packet of the Binding Update message which the information is embedded by the information embedding means.

12. The dynamic network management apparatus according 20 to claim 9 or 10, so arranged that the sending means sends information indicating that an access router option can be used in parallel with sending the information.

25 13. The dynamic network management apparatus according

to claim 9 or 10, comprising a packet creating means for creating a special packet representing the information, and being so arranged that the sending means sends the special packet created by the packet creating means.

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14. A dynamic network management apparatus placed in a local fixed router statically connected to a mobile access router forming a mobile network, comprising:

10 a receiving means for receiving information including a global address of the mobile access router, and

an information storing means for storing the global address of the mobile access router received by the receiving means.

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15. The dynamic network management apparatus according to claim 14, comprising an informing means for informing a node which is connected behind the local fixed router about the global address of the mobile access router 20 stored in the information storing means.

16. The dynamic network management apparatus according to claim 14, comprising:

25 a determination means for determining whether the information received by the receiving means is sent from

a default router of the mobile network or not, and
a store controlling means for controlling such that
the global address of the default router is stored in
the information storing means only when the
5 determination means determines that the information is
sent from the default router.

17. The dynamic network management apparatus according
to claim 14 wherein the information received by the
10 receiving means is a router advertisement message of the
mobile access router.

18. The dynamic network management apparatus according
to claim 15 so arranged that the informing means informs
15 the node using a router advertisement with the global
address of the mobile access router.

19. A dynamic network management method used by a
mobile access router capable of forming a mobile network
20 and connecting to a local fixed router residing in the
mobile network, comprising:

an information detection step of detecting
information to request for a global address of the
mobile access router, the information being sent from a
25 certain mobile node participating in the mobile

network, and the information being forwarded by the local fixed router to the mobile access router, and

a response information sending step of sending response information including the global address of the mobile access router to the mobile node which has sent the information through the local fixed router in order to inform the global address of the mobile access router when the information is detected at the information detection step.

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20. A dynamic network management method used by a mobile access router capable of forming a mobile network and connecting to a local fixed router residing in the mobile network, comprising:

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an information detection step of detecting information indicating that a mobile node does not know a global address of the mobile access router, the information being sent from the mobile node participating in the mobile network and not knowing the global address of the mobile access router, and the information being forwarded by the local fixed router to the mobile access router, and

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a response information sending step of sending response information including the global address of the mobile access router to the mobile node which has sent

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the information through the local fixed router in order to inform the global address of the mobile access router when the information is detected at the information detection step.

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21. The dynamic network management method according to claim 19 or 20, comprising:

an information deleting step of deleting the information from a packet with the information when the 10 information is detected at the information detection step, and

a forwarding step of forwarding the packet which the information has been deleted at the information deleting step to a predetermined destination set in the 15 packet.

22. The dynamic network management apparatus according to claim 19 or 20, comprising a forwarding step of forwarding a packet with the information to a determined 20 destination set in the packet.

23. The dynamic network management apparatus according to claim 19 or 20, comprising a dropping step of dropping a packet with the information.

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24. A dynamic network management method used by a mobile node capable of participating in a mobile network formed by a mobile access router and connecting to a certain router residing in the mobile network,

5 comprising:

a sending step of sending information to request for a global address of the mobile access router to the router when the mobile node does not know the global address of the mobile access router, the information

10 being forwarded by the connected router to the mobile access router, and

a response information receiving step of receiving response information including the global address of the mobile access router sent from the mobile access router as a response to the information sent at the sending

15 step.

25. A dynamic network management method used by a mobile node capable of participating in a mobile network

20 formed by a mobile access router and connecting to a certain router residing in the mobile network,

comprising:

a sending step of sending information indicating that the mobile node does not know a global address of

25 the mobile access router to the router when the mobile

node does not know the global address of the mobile access router, the information being forwarded by the connected router to the mobile access router, and

5 a response information receiving step of receiving response information including the global address of the mobile access router sent from the mobile access router as a response to the information sent at the sending step.

10 26. The dynamic network management method according to claim 24 or 25, comprising a information embedding step of embedding the information in a packet header of a Binding Update message sent to a predetermined communication apparatus, wherein the packet of the
15 Binding Update message which the information is embedded at the information embedding step is sent at the sending step.

27. The dynamic network management method according to
20 claim 24 or 25, wherein information is sent indicating that an access router option can be used in parallel with sending the information at the sending step.

28. The dynamic network management method according to
25 claim 24 or 25, comprising a packet creating step of

creating a special packet representing the information, wherein the special packet created at the packet creating step is sent at the sending step.

5 29. A dynamic network management method used in a local fixed router statically connected to a mobile access router forming a mobile network, comprising:

 a receiving step of receiving information including a global address of the mobile access router, and

10 an information storing step of storing the global address of the mobile access router received at the receiving step in a predetermined information storing means.

15 30. The dynamic network management method according to claim 29, comprising an informing step of informing a node which is connected behind the local fixed router about the global address of the mobile access router stored in the predetermined information storing means.

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31. The dynamic network management apparatus according to claim 29, comprising:

 a determination step of determining whether the information received at the receiving step is sent from a default router of the mobile network or not, and

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a store controlling step of controlling such that the global address of the default router is stored in the predetermined information storing means only when it is determined at the determination step that the 5 information is sent from the default router.

32. The dynamic network management method according to claim 29 wherein the information received at the receiving step is a router advertisement message of the 10 mobile access router.

33. The dynamic network management method according to claim 30 wherein the node is informed by a router advertisement with the global address of the mobile 15 access router at the informing step.